

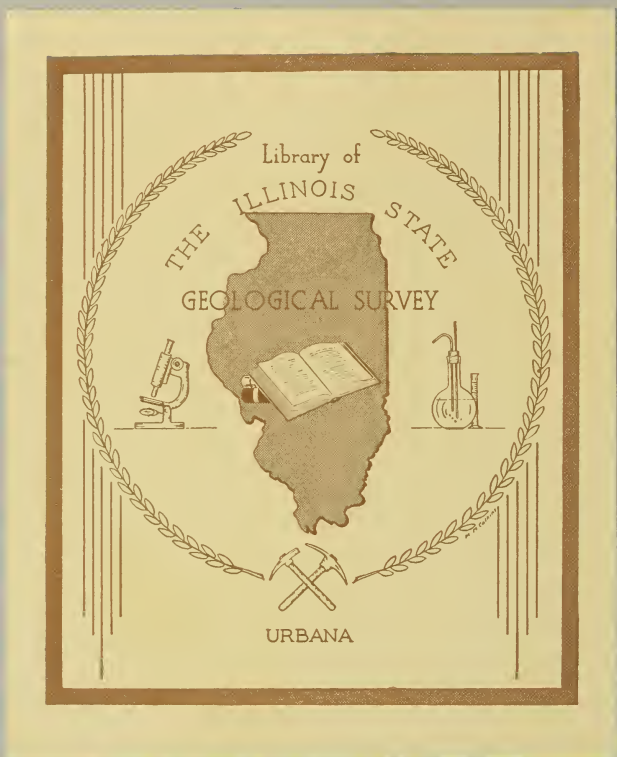
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MARYLAND GEOLOGICAL SURVEY

Brief account of Maryland Mineral
Resources and Description of Exhibit
Maryland Mineral Products in Mines
and Metallurgy Building, St. Louis,
1904. - Prepared for Louisiana
Purchase Exposition, St. Louis,
Missouri, 1904.



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STATE GEOLOGICAL SURVEY

BRIEF ACCOUNT
OF
MARYLAND MINERAL RESOURCES
AND DESCRIPTION OF
EXHIBIT OF MARYLAND MINERAL PRODUCTS
IN
MINES AND METALLURGY BUILDING, ST. LOUIS, 1904



Prepared for
LOUISIANA PURCHASE EXPOSITION
ST. LOUIS, MO., 1904

BY
MARYLAND GEOLOGICAL SURVEY
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THE JOHNS HOPKINS PRESS
BALTIMORE, MD.,
1904

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STATE GEOLOGICAL SURVEY

BRIEF ACCOUNT OF MARYLAND MINERAL RESOURCES

Prepared for
LOUISIANA PURCHASE EXPOSITION
ST. LOUIS, MO., 1904

The mineral resources of Maryland have yielded a great variety of products, some of which afford the basis for important commercial enterprises, while others give promise of prospective value. Many of the Maryland minerals have been worked since early colonial days, especially the brick clays and the deposits of iron carbonate. The Maryland coal deposits also were early discovered, and have been the basis of an important industry for more than half a century. Still other mineral products have been developed within quite recent years and the annual value of the Maryland mineral output has been steadily increasing. The ancient crystalline rocks, confined for the most part to the Piedmont region between the Monocacy and the Chesapeake, have afforded the most varied mineral substances. Here occur the most important building-stones; the slates of Delta and Ijamsville; the granite of Port Deposit, Woodstock, Ellicott City, and Guilford; the gneiss of Baltimore; the marble of Cockeysville and Texas; the crystalline limestone of Westminster; the sandstone of Deer Creek; and the serpentine of Cardiff, Broad Creek, and Bare Hills. In these oldest rocks occur also the ores of gold, copper, chrome, lead, and zinc. Iron ore is also found here while all the flint, feldspar, kaolin, and mica in the State must be sought for in these rocks. These older rocks also appear in the Blue Ridge district where they form the Middletown Valley and have yielded traces of copper, antimony, and iron.

Rocks of later age, forming what geologists call the Paleozoic system, make up the western section of the State. They furnish much sandstone and limestone suitable for building purposes, the latter also being burned extensively for agricultural uses. There are also important deposits of cement rock that have afforded the basis for an extensive industry. At the top of this Paleozoic system of rock formations are situated the coal beds of the famous Cumberland-Georges Creek coal basin, including the "Big Vein" that is universally thought to furnish the highest quality of steam and smithing coal. These same rocks also contain important deposits of fire-clay and iron ore, the former affording the basis for a very important fire-brick industry.

The post-Paleozoic formations of the State, although not as rich in mineral products, are not devoid of deposits of economic value. The interesting variegated limestone breccia, known as Potomac marble, and the brown sandstone of Frederick and Montgomery counties belong to the oldest of these post-Paleozoic strata. The series of still unconsolidated beds representing much of the remainder of post-Paleozoic time and comprising all of Eastern and Southern Maryland, and known as the Coastal Plain, furnishes the chief supply of brick, potter's and tile clay; of sand, marl, and diatomaceous earth (silica); and much of the iron ore. The clay industry, particularly, is one of the most important in the State and is largely based on the clays of this region.

The various economic products will be briefly considered in the following pages.

Coals.—The coal deposits of Maryland are confined to western Alleghany and Garrett counties and are a part of the great Appalachian coal field which extends from Pennsylvania southward to Alabama. The Maryland coal is mainly semi-bituminous or steam coal, and in the Georges Creek basin, near Cumberland, contains the famous "Big Vein" or Fourteen-foot seam, that for steam-producing and smithing purposes has no superior and few equals in any portion of the world. Below the "Big Vein" are a number of smaller workable seams that contain coal of fine quality, which is already securing an extensive market. The Maryland coal was discovered early in the century and has been continuously worked since 1836, when the first company was organized. The aggregate output of Maryland steam and smithing coal at the present day amounts to over four million tons annually.

The Maryland Big Vein coal occurs in the upper Coal Measures, while

the most important of the small veins are in the lower Coal Measures. The latter have received less consideration in the past on account of the reputation of the Big Vein, but are destined to play a very important part in future coal development in Western Maryland.

The Maryland coal is high in fixed carbon, and, especially in the case of the "Big Vein," low in sulphur and ash, thus possessing in highest measure those qualities which give to coal its steam-producing power.

Clays.—The clays of Maryland are widely extended, occurring in a great number of the geological formations. They are most extensively developed through a belt running from northeast to southwest along the western margin of the Coastal Plain, and including both the Baltimore and Washington regions. Other important clays are found in the central and western sections of the State, and even the southern and eastern counties are not without this material in large quantities. The Maryland clays are suitable for all grades of building-brick, tile, terra cotta, and fire-brick, and also some grades of pottery. Brick-making began in Maryland in colonial days and has since been one of the most important industries in the State—the great brick works of Baltimore being among the largest of their kind. The manufacture of fire-brick has been one of the most characteristic industries of Maryland for 50 years, and the fire-brick made from the Carboniferous clays of Allegany and Garrett counties is regarded as the best in the country.

Porcelain Materials.—The state of Maryland is well provided with porcelain materials, including flint, feldspar, and kaolin. The flint is widely distributed throughout the eastern portion of the Piedmont Plateau, and is especially abundant in Cecil, Harford, Baltimore, Carroll, Howard, and Montgomery counties. It occurs as vein fillings in the form of pure granulated or vitreous quartz. In Harford county, where the veins are most abundant, the quartz has been quarried in large amounts. It is crushed, and then shipped in sacks to the potters.

The feldspar deposits of Maryland are among the most important in the United States and have been mined more or less extensively in Cecil, Baltimore, and Howard counties. In Cecil county especially large deposits occur near the Pennsylvania line and are actively operated at the present time.

Kaolin is produced mainly in Cecil county, which is part of one of the most important kaolin regions in the United States, other deposits being found in the adjoining portions of Delaware and Pennsylvania. The

kaolin has been worked extensively at several points, notably at North East, Cecil county, where large shipments of this material have been annually made. Considerable flint is extracted in the washing of the kaolin.

Sands.—Sand deposits of economic value have been exploited both in the western and southern sections of the State, and the sandy sediment from the bed of the Potomac river and from other streams has also been dredged in large amounts. The Paleozoic formations of Western Maryland contain at two horizons important glass-sand deposits, that have been mined largely in nearby regions. The most extensively developed sand deposits in the State, however, are found in Anne Arundel county, where large excavations have been made in the Cretaceous deposits near the head of the Severn river, and a good grade of glass-sand obtained. The location of these sand deposits at tide renders it possible to ship the materials cheaply by water, and it is probable that they will be much more fully utilized in the future than they have been in the past.

Molding-sand, suitable for brass castings, is found in the vicinity of Catonsville, Baltimore county, and this deposit is worked to some extent at the present time. A sand is secured from the south shore of the Patapsco river below Baltimore for pig-iron casting.

Many sands are used for building purposes, the Cretaceous sands of Anne Arundel and Baltimore counties finding large employment in this way. Some of the residual sands of the Piedmont Plateau region are similarly used, especially those derived from the quartz-schist.

Marls.—The Tertiary formations of Eastern and Southern Maryland contain important marl deposits that have never been developed except for local uses. Their agricultural importance has not been generally recognized, although they have been worked to some extent since the early decades of the last century. The older Tertiary marls are glauconitic, and are not unlike the famous green-sand marls of New Jersey, which have been so largely and successfully employed there as a natural fertilizer. Green-sand marl contains a small percentage of phosphoric acid, some potash and a greater or less amount of carbonate of lime. When spread upon the surface of the land the effect is slow, but is often more lasting than the commercial fertilizers. The younger Tertiary marls are mainly shell deposits, and are commonly known under the name of shell-marls. They frequently contain a large percentage of lime, and thus afford a valuable addition to certain soils.

Diatomaceous Earth.—Diatomaceous earth, known to the trade as silica or tripoli, has been produced in larger quantities in Maryland than anywhere else in the United States. It is confined to the middle Tertiary and consists of deposits of almost pure silica 30 to 40 feet in thickness. It is chiefly found in Calvert and Charles counties, where it has been more or less extensively worked at the mouth of Lyons Creek on the Patuxent, and at Popes Creek on the Potomac river. This remarkable deposit is composed of the microscopic shells of diatoms, and has found various uses in the trades.

Iron Ores.—The iron industry in Maryland was developed early in colonial days, and continued until a recent period to be one of the most important factors in the prosperity of the State. Numerous references to the iron ores and their manufacture into iron occur in the records of colonial times. The Principio Company, one of the largest of early commercial enterprises, controlled many furnaces and forges in Maryland and Virginia, and both during the revolutionary war and the war of 1812 furnished guns and projectiles to the army. These furnaces, as well as those in the western counties of the State, have long since been abandoned, with the exception of the Catocin furnace in Frederick county, which has been from time to time in recent years in active operation. The only ores now being produced in Maryland to any extent are the carbonate ores derived from the clays along the western margin of the Coastal Plain, chiefly in Anne Arundel and Prince George's counties. The great bulk of these ores is to-day smelted in the Muirkirk furnace in Prince George's county. It is interesting to note that this carbonate ore was probably the first iron ore worked in Maryland, and is, even to-day, highly prized for its tensile strength. It is used in considerable quantities by the U. S. Government in the manufacture of armor-piercing projectiles and gun carriages.

Mineral Paints.—Mineral paint has been produced at several points in Maryland. Large quantities were obtained in former years from the brown hematite iron ore deposits of Frederick county. Ochre mines have also been operated in Carroll and Howard counties. The deposits of chief importance at the present time, however, are found associated with the clays in Anne Arundel and Prince George's counties. In the latter locality the material is a fine and highly ferruginous clay that can be easily worked, and large quantities have been annually mined. It occurs in many grades and colors.

Building and Decorative Stones.—The building and decorative stones of Maryland are widely distributed throughout the western and central portions of the State and consist of many different varieties which, from their diversity in color, hardness, and structural peculiarities, are well adapted for nearly all architectural and decorative purposes. Among the most important may be mentioned the granite, gneiss, marble, limestone, slate, sandstone, and serpentine. Among the localities in Maryland where *granite* has been most extensively worked are Port Deposit, in Cecil county; Woodstock, in Baltimore county; and Ellicott City and Guilford, in Howard county. Other areas in Cecil, Howard, and Montgomery counties contain some good stone, but it is quarried only for local use. At the localities first mentioned the granite is extensively quarried at the present time, and has afforded material for the construction of some of the most important buildings in the country, including the Capitol and Congressional Library in Washington, Fortress Monroe, Forts Carroll and McHenry, the U. S. Naval Academy, and other public and private buildings, as well as bridges in Baltimore, Washington, and Philadelphia. The excellent quality of the stone renders it available in many cases as a decorative stone, and monumental work has already been undertaken.

The more solid varieties of the *gneiss* occurring in and near the city of Baltimore are extensively quarried for use as foundation stone. This rock is of a gray color, and occurs in parallel layers of light and dark stone, which at times are more or less sharply contrasted. Buildings constructed of gneiss, of which there are many in Baltimore, present an agreeable effect. Among the more important structures may be mentioned the Women's College of Baltimore.

The *marble* of Maryland is mainly confined to the eastern division of the Piedmont Plateau. The white varieties occur for the most part in Baltimore county, and the highly variegated marbles in Carroll and Frederick counties. The white marbles of Baltimore county are found in a series of narrow belts a few miles to the north of Baltimore City. The most important of the areas is that which extends northward from Lake Roland to Cockeysville, and which is traversed by the Northern Central Railway. The marble has been extensively quarried both at Cockeysville and Texas, the well-known Beaver Dam Marble quarries of the former locality having been in successful operation for more than 75 years. The rock is a fine saccharoidal dolomite of great compactness and durability. Monoliths of large size can be obtained at the quarries. Many im-

portant structures in Baltimore, Washington, and Philadelphia have been made of this marble. Stone for the construction of the Washington Monument in Baltimore was taken from this locality as early as 1814.

The fine-grained, compact, and variegated marbles, or crystalline limestones, of the western portion of the Piedmont Plateau in Carroll and Frederick counties compare favorably in their quality, texture, and beautiful veining with the well-known marbles from Vermont and Tennessee, and are deserving of much more attention than they have heretofore received. In the Wakefield Valley, west of Westminster, a beautiful mottled red and white marble occurs; others of black and white, gray and white, and blue and white veining occur near New Windsor and Union Bridge, and still others of a variegated yellow, with lighter veinings, have been derived from the same area. This marble, on account of the limited extent of the deposits, has not been regarded as of much economic importance, but the stone, when secured, is well adapted for purposes of interior decoration.

Another stone which may be classed with the decorative marbles is the Triassic conglomerate or breccia, of southern Frederick county. It is known as "Potomac Marble," or "Calico Rock," and has received noteworthy application as a decorative stone in the old Hall of Representatives at Washington, where it forms a series of beautiful columns. It occurs, well exposed, at Washington Junction, Frederick county, and extends northward along the base of the Catoctin Mountain. The limestone fragments of which the rock is composed are imbedded in a red ferruginous cement, and the stone, when polished, presents a very beautiful appearance.

The blue *limestones* of the Appalachian district have been used to some extent for building purposes, more especially in Hagerstown, where several structures have been made of this material. The blue limestone changes its color rapidly on weathering, and with a rather pleasing effect. A very compact, even-grained, and pure cream white stone occurs at one or two points in the Hagerstown Valley, and has already been developed to some extent. The limestones are extensively used for foundation and other purposes.

The *slate* of northern Harford county is a part of the Peach Bottom Slate Belt that extends northward into Pennsylvania and southwestward into Baltimore and Carroll counties. The best slate in this belt is found not far from the Pennsylvania line in Harford county, the ship-

ments, however, being made largely from Delta, Pennsylvania, and on this account the slate is often credited to Pennsylvania.* The Peach Bottom slate has always enjoyed a very high reputation, and is second to none in its durable qualities. It has been worked since Revolutionary times.

The *sandstones* of different color which have been found at many localities in Central and Western Maryland are, many of them, well suited to furnish valuable building-stones; but only one or two localities have been commercially developed to any extent, although the stone is used locally at many points. The red sandstone of Triassic age in Frederick and Montgomery counties has long possessed much reputation in the building-stone trade. The most extensive quarries are situated on the Potomac River, near the mouth of Seneca Creek. The Seneca sandstone has been quarried in a more or less systematic way since 1774, and has always been highly regarded for its strength and durability and its deep red color. It has been used in the construction of many important buildings, including the Smithsonian Institution in Washington. The white Cambrian sandstone of the Catoctin and Blue Ridge mountains has been extensively utilized locally, and at times has found somewhat wider employment, especially by the railroad companies. In Allegany and Garrett counties the Silurian, Devonian, and Carboniferous sandstones have been quarried at several points, particularly in the vicinity of Cumberland, where two of these sandstone beds have furnished materials for steps, curbs and architectural trimmings.

One of the most interesting and beautiful decorative stones in Maryland is the *serpentine*, which has been worked more or less extensively in Harford, Baltimore, and Cecil counties. The rock is very hard, and possesses a rich emerald green color, clouded with darker streaks of included magnetite. Maryland serpentine has been used for interior decoration in several large buildings in New York, Philadelphia, Baltimore, and Washington, and has great possibilities as a decorative stone.

A number of other Maryland stones have been used for building and decorative purposes. Among these may be mentioned the black *gabbro*, locally known as "Niggerhead Rock," which occurs widely throughout the eastern portion of the Piedmont Plateau. It is very hard and tough and cannot be economically quarried and dressed, and on that account has not found a very wide use. The various other stones employed for building purposes can be regarded as having little more than local value.

Lime and Cement Products.—The limestone and marble deposits of Maryland have been extensively burned for building and agricultural uses. This industry is not as important as it was at an earlier period, but there are still many kilns used for supplying lime for local purposes scattered throughout the district in which the calcareous rocks appear.

The limestone and marble are also used as a flux for blast furnaces, the main supply being derived from the coarse-grained marble of Texas, Baltimore county, and the limestone of Cavetown, Washington county.

Hydraulic cement has been extensively manufactured from the magnesian limestone of western Washington and Allegany counties, especially at Hancock and Cumberland, and more recently at Pinto, where extensive plants have long been in operation. The products of these industries have a high reputation, and have been extensively employed both within and without the State. Cement is also made from the slag of the Sparrows Point furnaces.

Gold Deposits.—The crystalline rocks of the Piedmont Plateau have been found to carry gold in Maryland, Virginia, North Carolina, and Georgia. The gold occurs in quartz veins, which occupy the old lines of fracture in the rocks. Gold was first discovered in Maryland in 1849, in Montgomery county. The first mine was opened in 1867 and some wonderfully rich specimens have been obtained, although the gold is so unevenly distributed that it has never been worked with profit. Gold has been reported from other portions of the State, but these so-called finds are, when thoroughly sifted, found to be either entirely without foundation or the amount of gold so slight as to have no commercial value. The Montgomery county mines in 1890 produced between \$15,000 and \$20,000 worth of gold; but within the last few years the mines have been practically abandoned. A few hundred dollars worth of gold only is annually obtained. In 1902 it amounted to \$2500.

Road Materials.—Maryland is well provided with road-building materials of good quality. The trap rocks, which have shown themselves as the result of careful tests to be best adapted for this purpose, occur well scattered throughout the seven central counties of the State, and advantageously located for land and water transportation. The western counties, although without trap rocks, are all provided with limestone, as well as silicious deposits of value. Most of the counties of Southern Maryland, and the northern counties of the Eastern Shore, have iron-bearing gravels that can be employed with advantage for road-building

purposes. The central and southern Eastern Shore counties have, in the absence of proper rock, a large supply of oyster shells, so that no section of the State is without road-building material of some kind.

Mineral Waters.—The mineral waters of Maryland have attracted considerable attention, and several kinds are being placed on the market at the present time with greater or less success. A few are represented as having medicinal properties, but the majority are sold principally as table waters, mostly in the city of Baltimore. Nearly all of the well-known waters come from the crystalline rocks of the Piedmont Plateau, a few only being reported from the Appalachian region and the Coastal Plain. Summer resorts have sprung up, as in the case of Chattolane and Buena Vista, about the more important of these springs.

Miscellaneous Deposits.—There are several other mineral substances in Maryland, which are either not being worked at all or only to a very limited extent at the present time, that have had a very interesting history. Among them may be mentioned copper, chrome, and soapstone.

Ores of *copper* were worked in Maryland at a very early period in colonial times, and until the discovery of the great copper fields of the Lake Superior region afforded one of the most important mineral products of the State. The abandoned mines in Baltimore, Carroll, and Frederick counties to-day indicate the importance of the industry at this earlier period.

Deposits of *chrome ore* were discovered in 1827 in the serpentine of the Bare Hills, in Baltimore county, and subsequently other deposits were found in Harford and Cecil counties. For many years Maryland supplied most of the chrome ore of the world, but the discovery in 1848 of the great deposits of chromite in Asia Minor caused the practical abandonment of the chrome mines of Maryland, although Baltimore is still one of the most important centers for the manufacture of chromium salts.

Deposits of *soapstone* have been worked to some extent in Carroll, Harford, and Montgomery counties, the most important occurrence being in Carroll county, where there is a small production of this mineral at the present time.

Among other mineral substances known to occur in Maryland, although not commercially profitable at the present time, may be mentioned lead, zinc, manganese, antimony, molybdenum, graphite, mica, and asbestos.

TABLE OF PRODUCTION OF MARYLAND MINERAL PRODUCTS FOR 1902.

| | |
|--|-------------|
| Coal | \$5,579,869 |
| Brick and tile..... | 879,995 |
| Pottery..... | 525,300 |
| Raw clays..... | 9,249 |
| Kaolin | 10,055 |
| Flint | 86,251 |
| Feldspar | 9,100 |
| Sands | 14,825 |
| Marls | 3,000 |
| Silica or tripoli..... | 5,000 |
| Iron ore (carbonate and hematite)..... | 46,911 |
| Mineral paints..... | 15,000 |
| Building stone: | |
| Granite and gneiss..... | \$758,203 |
| Limestone | 126,613 |
| Slate | 118,084 |
| Marble and serpentine..... | 80,000 |
| Sandstone | 15,405 |
| Gabbro | 5,000 |
| Miscellaneous | 5,000 |
| | <hr/> |
| | 1,108,305 |
| Cement, rock and slag..... | 225,680 |
| Lime | 326,417 |
| Gold | 2,500 |
| Road materials..... | 125,000 |
| Mineral waters..... | 45,100 |
| | <hr/> |
| Total | \$9,016,557 |

DESCRIPTION OF EXHIBIT
OF
MARYLAND MINERAL PRODUCTS
IN
MINES AND METALLURGY BUILDING,
ST. LOUIS, 1904

The exhibit of Maryland's mineral resources occupies a conspicuous position at the southern end of the Mines and Metallurgy Building. It covers an area of over 2000 square feet of floor space together with 4000 square feet of wall and window space, the combined area being surpassed by but few other states.

The exhibit was planned and installed for the Maryland Commissioners to the Louisiana Purchase Exposition under the direction of Professor Wm. Bullock Clark of the Johns Hopkins University, Chief of the State Geological Survey, assisted by Professor Edward B. Mathews of the same organizations. The materials forming the display were gradually accumulated over several years, those first collected forming the State's exhibit at Buffalo in 1901, and these further augmented constituting the Charleston exhibit later. The present exhibit has been largely increased over the previous displays and is now considered to be thoroughly representative of the varied mineral resources of the State. The exhibit won the only Gold Medal awarded to any state for its collective exhibit of mineral resources at the Buffalo Exposition, and also received, among other awards, 12 special Gold Medals, twice the number awarded to any other state in mining at the Charleston Exposition.

The exhibit may be divided into a number of main groups: (a) mineral products, (b) systematic geology, (c) maps, sections, and reports.

The mineral products may be classed as follows: coals; building and decorative stones; ores; clays and clay products, including pottery, tile,

terra cotta, fancy and common brick, fire-brick, enameled-brick, retorts, and stove-linings; limestones, sands; cement rocks; flints; feldspars; marls; tripoli; barytes; soapstone; etc. The total value of Maryland's production of these materials has been gradually increasing in recent years until it now aggregates between nine and ten million dollars annually. The attempt has been made to show the natural materials together with the various kinds of manufactured products derived from them. All of the leading operators and manufacturers in the State have taken part in the display, some of them supplying large collections of materials.

Among some of the most conspicuous exhibits of economic products may be mentioned the following: Blocks of coal mainly from the Georges Creek valley furnished by the Consolidation Coal Company, Black, Sheridan and Wilson Company, Georges Creek Coal and Iron Company, American Coal Company, Maryland Coal Company, New Central Coal Company, Piedmont Mining Company, Davis Coal and Coke Company, Garrett County Coal and Mining Company, Phoenix and Georges Creek Coal Company, Monroe Coal Company, Moscow-Georges Creek Mining Company, Piedmont and Georges Creek Coal Company, and G. C. Pattison. Columns, slabs, and cubes of building and decorative stones, from the leading quarries of the State, arranged in the form of a pyramid and on tables, among them granite from McClenahan and Brother at Port Deposit, Maryland Granite Company at Guilford, and Guilford and Waltersville Granite Company at Granite; marble from Beaver Dam Marble Company at Cockeysville, Washington Marble Company near Eakles Mills, and Washington Junction Stone Company near Point of Rocks; sandstone from Seneca Stone Company of Seneca, and serpentine from J. H. C. Watts at Cardiff; also specimens from the numerous quarries in the vicinity of Baltimore. A booth made of slate from the well-known Peach Bottom Slate Producers' Association and other interests. Various iron and copper ores, particularly the historic carbonate iron ores worked in Baltimore, Anne Arundel, and Prince George's counties and smelted at the Muirkirk furnace of Charles E. Coffin, illustrating which are shown armor-piercing projectiles made by the U. S. Arsenal at Watertown, Mass., and metal rolls made by the Philadelphia Roll and Machine Company. In the clay exhibit a large case filled with decorated pottery from the manufactories of Edwin Bennett Pottery Company and D. F. Haynes and Son of Baltimore;

a wall case containing enameled-brick from the works of Andrew Ramsay of Mount Savage; a large central mantel piece made of Maryland clay and put up by the Washington Hydraulic-Press Brick Company; a display of terra cotta and building bricks by the Burns and Russell Company and the Baltimore Brick Company of Baltimore; fire-brick supplied by the Union Mining Company of Mount Savage, and the Baltimore Retort and Fire Brick Company of Baltimore; sand-brick obtained from the Cumberland Granite Brick Company of Cumberland; roofing-tile from Edwin Bennett's Roofing Tile Works of Baltimore; and stove-linings from the Green Hill Fire Brick Company of North East. Among other materials limestone and lime from S. W. Barrick and Son of Woodsboro, Wm. C. Ditman of Texas, John W. Tabler Lime and Stone Company of Frederick, and the M. J. Grove Lime Company of Lime Kiln; cement rock and cement from the Cumberland Hydraulic Cement Company of Cumberland, the Round Top Cement Company of Hancock, and the Cumberland and Potomac Cement Company at Pinto; flint from the mines of the American Pottery Supply Company in Harford County, and feldspar from the mines of the Sparvetta Mining Company in Cecil county; also tripoli from the quarries of the New York Silicite Company on the Patuxent river.

In addition to the exhibit of mineral products there is an extensive systematic collection representing the geology, mineralogy, and paleontology of the State displayed in a series of plate-glass cases on the walls. In this exhibit the numerous materials found at the various geological horizons of the State from the Archean to the Pleistocene are displayed, the object of the exhibit being to show the great variety of geological formations represented in Maryland.

A large collection of maps, sections, photographs, and illustrations covers the upper portion of the walls. They furnish a graphic view of the leading physiographic, geologic, hydrographic, and climatologic features of the State. Colored transparencies, giving views of Maryland scenery, and greatly enlarged micro-photographs of the leading types of Maryland rocks occupy the windows. The publications of the Maryland Geological Survey fill one of the cases, and two original Mason and Dixon Line stones, a "crown-stone" and a "mile-stone," are also displayed.

Surmounting the entire exhibit and visible from all parts of the building is the great seal of the State in black and gold over which in gilt letters is the word MARYLAND.

STATE GEOLOGICAL SURVEY



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